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SUGGESTIBILITY OF SMOKERS AND NON-SMOKERS

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SUGGESTIBILITY OF SMOKERS AND NON-SMOKERS[1, 2]

By Theodore R. Vallance

Probably since the days of Walter Raleigh investigations of one sort or another have been made in the field of tobacco smoking. The question most frequently controversial concerns the relative effects of nicotine consumption. Since so pleasurable a "vice" needs little or no supporting propaganda, the literature condemning the use of tobacco is preponderant. Societies of parents and teachers everywhere have been almost unanimous in their negative position on the subject; religious zealots have vigorously denounced the "smoking evil," and athletic directors have run the anecdotal method into the ground trying to demonstrate reasons for abstinence.

Only comparatively recently have some objective surveys on the physiological and psychological effects of tobacco smoking been published. As for physiological effects, it has been adequately demonstrated that there is a general decrease in the efficiency of body functions, with disorganization and inhibition of some processes (such as digestion and muscular tonus) with extreme indulgence in nicotine. On the psychological side, Clark L. Hull's comprehensive report (1) is outstanding. The work indicates no significant effects on mental processes, and such small effects as do appear tend to disappear with habituation. Small changes in heart rate, muscular fatigue, steadiness of hand, all physiological processes, are noted.

The foregoing, however, only grazes the point at issue. It is interesting to note that there is a common fallacy in all anti-nicotine arguments employing correlation of various activities with the use of tobacco. Rather convincing correlations are cited with apparently no consideration of causation. For example, there is a study by J. R. Earp (2) which supposedly indicates the effect of tobacco smoking on mental activity: Of 177 Antioch College students smoking tobacco 57.1% failed to graduate; of 176 non-smokers only 31.8% failed to graduate. The conclusion is then made that

[1] From the Psychology Laboratory of Miami University (Ohio). The writer is indebted to Professor S. A. Switzer for many helpful suggestions.
[2] Recommended for publication by Dr. C. F. Scofield, July 25, 1940.

smoking retards mental efficiency. Could not the conclusion just as well be that those who are predisposed to doing poor grades of work are those that are most apt to take up tobacco? No consideration is made of the possibility that there may be personality traits in those who smoke which predispose them to low scholastic endeavors, or of traits in those so predisposed to take up smoking more readily than persons lacking those traits. Simple correlations of such complex habits as integrity, or honesty with such a habit as smoking, whose causality may be very complex, reveal nothing but the bare fact: a correlation.

It is the purpose of this investigation to determine the presence or absence of a relationship between tobacco smoking and one measurable form of positive suggestibility. Answers to a questionnaire asking smokers: What induced you to take up smoking? lead one to the *a priori* assumption that there may be such a positive relationship. Out of 35 smokers questioned 29 replied with words meaning either "My friends were doing it, so I thought I'd try it" or "It seemed the smart thing to do."

Subjects

The subjects, of which there were 47, were students of Miami University, ranging in age from 17 to 24, each of whom had been away from home for at least one semester (assuming a decline in family influence and an increase in group influence on social behavior). Twenty-five were smokers and 22 were non-smokers; all were members of one fraternity.

Apparatus

The recording device used was the familiar Hull Postural Movement Recorder with certain modifications by the author as follows:

The spring anchoring the sliding steel shaft to which the tracing point is attached was removed and a weight substituted for it, the purpose being to assure a constant amount of resistance at all levels. To eliminate rotation of the shaft a groove 1/16″ wide and 1/16″ deep was cut the entire length of the shaft; into this groove was fitted a guiding pin, soldered to the sleeve through which slid the shaft.

For the usual smoked paper plain white paper was substituted on the kymograph, and the movements were recorded thereon by a pen soldered to what had been the tracing point. Another pen was attached to the arm of a small electromagnetic recorder which was used to mark the limits of the periods of suggestion and of silence. One filling of the pens was sufficient to last for one complete trial (about nine minutes).

The suggestion was delivered by a phonograph located directly in front of the subject, the speaker of which was set 18″ from the floor. The record used was a Presto Green Seal, and showed very little wear even at the end of the experiment; the voice was that of the experimenter.

Procedure

Apparent informality was the keynote of the procedure. At a scheduled time between 12:45 and 1:45 p. m. (shortly after lunch to eliminate or control any possible hunger or satiation effect) the subject followed the experimenter into the 8x15 experimental room, which was amply lighted by daylight plus a 150 watt globed bulb suspended from the ceiling. After a brief glance about the room, of no more than 8 seconds, during which E closed the door, S was placed in front of the phonograph, the lid of which was down, and addressed thus: "Now stand right here facing this wall (E points toward phonograph) and stand with your feet close together, not as though rigidly at attention, but just comfortably erect. Keep your hands at your sides and follow instructions as they come." At this point the blindfold was applied, with the comment "This is just an ordinary blindfold." Then, on pretext of adjusting the subject to the proper position, E, with one hand on S's shoulder, directed him to "Step this way just a little," and as S moved, the pin with the string to the sway recorder attached was fastened to the back of S's clothing, about 5′ from the floor.

After a silence period of two minutes the phonograph was started, and the experimental naïvete′ of S was enhanced by the following introduction: "The purpose of this experiment is to determine your acuteness of equilibrium. You are blindfolded so that your vision will not interfere with the experiment; you are to listen closely to

what I am saying and to think intently about what I am saying." Immediately following this came the suggestion: "Now imagine that you are falling forward, swaying slowly forward, farther and farther forward, etc. etc." which was continued for 85 seconds. After the suggestion came another two minute period of silence to allow the effect of the preceding suggestion to dissipate and to permit the reestablishment of the normal sway. At the halfway point in this period the blindfold was removed and S was instructed to "Keep your eyes closed voluntarily from here on." At the end of the period the same suggestion procedure as above described was initiated, the only change being the substitution in the introduction of "You are to keep your eyes closed so—" for "You are blindfolded so—." Following this suggestion period was another two-minute period of silence, after which S was informally dismissed with thanks and a request not to tell prospective subjects anything of the procedure, this to assure experimental naïvete' in the latter.

One half of the subjects went through the procedure in the order just described (A, B), and the other had the situation reversed (B, A), that is, the first period was the "eyes closed" period (B), and the second one the "blindfolded" period (A).

The purpose of this dual, alternating procedure was twofold. It has been suggested (3) that the mere fact of being blindfolded might, through possible implications of the mistrust of the subject, bring about resistance to suggestions, or result in general uneasiness which might affect the results. To eliminate any such effects the "B" period was introduced. The "A" period was retained to counteract errors that might arise from S's peeking, inadvertent opening of the eyes, or failure to comprehend instructions. The alternation was included in the procedure so as to negate any effects of habituation or fatigue from the first period to the second.

Scoring

The amount of sway was measured from the median line of the preceding period of silence extended into the suggestion period, the line determined by inspection of the record in the silence period.

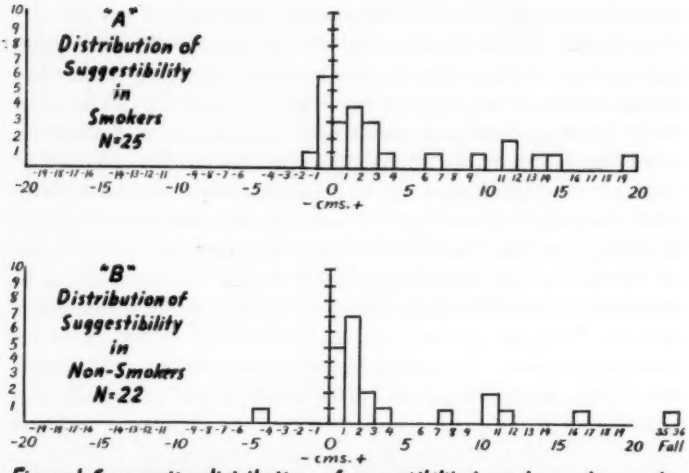

Figure I. Comparative distributions of suggestibility in smokers and non-smokers

In this way it is possible to observe and score the effects of resistance or habituation from the first to the second trials.

The suggestion period, representing 85 seconds, was divided into eight equal parts, and the maximum sway, positive or negative, was measured for each of the individual segments. These measurements were totaled and divided by the number of periods, 8 yielding the mean sway for the entire suggestion period. This method of measurement diminishes the effects on the score of chance great sways or of the subject's shifting of position.

Results

1. Non-smokers are more positively suggestible than smokers.
   a. The mean sway of smokers was 3.832 cm.
   b. The mean sway of non-smokers was 5.27 cm.
   c. The smokers were 72.71% as suggestible as the non-smokers, or conversely.
   d. The non-smokers were 27.29% more suggestible than the smokers.

2. Both groups showed the development of resistance from the first to the second period, regardless of order (AB or BA).
   a. 63.63% of the non-smokers showed greater sway in the first period.
   b. 56% of the smokers showed greater sway in the first period.
3. Of the smokers 56% showed a greater response in period A (blindfolded) than in period B (eyes closed), whereas of the non-smokers only 36.36% showed a greater response in A, 63.63% being greater in B.

GROUP TESTED	AVERAGE AGE	AVERAGE LENGTH OF HABIT IN YEARS	% NEGATIVE SWAY	MAXIMUM NEGATIVE SWAY IN CMS.	% POSITIVE SWAY	MAXIMUM POSITIVE SWAY IN CMS.	% POSITIVE FALLS	% OF GREATER SWAY IN 1st TRIAL PERIOD
SMOKERS	20.4	3.3	28.0	1.95	72.0	19.8	0.0	56.0
NON-SMOKERS	19.6		4.5	4.41	95.5	17.0	4.5	63.6

TABLE I Summary of Results

Conclusions

If the *a priori* assumption, that those who take up smoking are more suggestible than those who do not, is valid, the conclusion from the above data must be that tobacco smoking decreases one's positive suggestibility. The same conclusion must follow if positive suggestibility is evenly distributed among the population before a part of it takes up smoking. However, the lack of objective data in support of either of these assumptions makes them and the conclusion untenable.

The best we can do now is to say that under the conditions of this experiment smokers are somewhat less positively suggestible than non-smokers.

Results 3 (above) indicate that there is probably very little influence exerted on the results by the presence or absence of the blindfold.

BIBLIOGRAPHY

1. Hull, C. L.: The Effects of Tobacco Smoking on Mental and Motor Efficiency. Psychological Monographs, 1924. Psychological Review Co., Princeton, N. J.
2. Earp, J. R.: Cited in If You Smoke; A. G. Ingalls. Scientific American; June, 1936.
3. Vogel, Victor H.: Suggestibility in Delinquent and Nondelinquent White Males. Public Health Reports, Supplement No. 127. Washington, D. C., 1937.